

LIX.—*A Synopsis of the Myxinoïds of the Genus Heptatretus or Bdellostoma.* By C. TATE REGAN, M.A.

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HEPTATRETUS.

Eptatretus, Cloquet, Dict. Sci. Nat. xv. p. 134 (1819).*Homea*, Fleming, Philos. of Zool. ii. p. 375 (1822).*Heptatrema*, Voigt, Thierr. ii. p. 529 (1832).*Bdellostoma*, Müll. Abhandl. Akad. Berlin, 1834, p. 79.*Polistotrema*, Gill, Proc. U.S. Nat. Mus. 1880, p. 30.

Myxinoïds with 6 to 14 branchial apertures on each side and with the external branchial ducts subequal in length.

Pacific coast of America ; Japan ; New Zealand ; Cape of Good Hope.

The specimens enumerated are those in the British Museum Collection, on which this revision is based.

Synopsis of the Species.

I. 14 gill-openings	1. <i>polytrema</i> .
II. 11 to 13 gill-openings.	
Length of head, to first gill-opening, more than $\frac{1}{5}$ of the total length	2. <i>stouti</i> .
Length of head, to first gill-opening, less than $\frac{1}{5}$ of the total length	3. <i>deani</i> .
III. 10 gill-openings	4. <i>decatrema</i> .
IV. 8 gill-openings	5. <i>okinoseanus</i> .
V. 7 gill-openings.	
Teeth $\frac{12}{12} \mid \frac{12}{12}$	6. <i>cirratus</i> .
Teeth $\frac{8}{8} \mid \frac{8}{8}$	7. <i>banksii</i> .
VI. 6 gill-openings.	
Teeth $\frac{12}{11 \text{ or } 12} \mid \frac{12}{11 \text{ or } 12}$	8. <i>hexatrema</i> .
Teeth $\frac{9}{10} \mid \frac{9}{9}$	9. <i>buergeri</i> .

1. *Heptatretus polytrema*.

Bdellostoma polytrema, Girard, Proc. Ac. Philad. 1854, p. 199, and U.S. Nav. Astron. Exped., Zool. p. 252, pl. xxxiii. (1856); Günth. Cat. Fish. viii. p. 512 (1870).

14 gill-openings ; two rows of 12 teeth on each side, the 3

anterior teeth of each row united at the base; length of head, to first gill-opening, $6\frac{1}{3}$ in the total length.

Chile.

1. 380 mm.

Valparaiso.

'Challenger.'

2. *Heptatretus stouti*.

Bdellostoma stouti, Lockington, Amer. Nat. 1878, p. 793.

Polistotrema stouti, Jord. & Everm. Bull. U.S. Nat. Mus. xlvii. 1896, p. 6; Everm. & Goldsborough, Bull. U.S. Fish. Bureau, xxvi. 1906, p. 226 (1907).

Homea stouti, Dean, Journ. Coll. Tokyo, xix. 1904, Art. 2, p. 11, fig. A, and p. 20.

11 to 13 gill-openings; length of head, to first gill-opening, $3\frac{1}{2}$ to $4\frac{2}{3}$ in the total length.

California.

3. *Heptatretus deani*.

Polistotrema deani, Everm. & Goldsborough, Bull. U.S. Fish Bureau, xxvi. 1906, p. 225, fig. 1 (1907).

11 or 12 gill-openings; two rows of 10 or 11 teeth on each side; length of head, to first gill-opening, $5\frac{2}{3}$ to $6\frac{2}{3}$ in the total length.

Alaska.

4. *Heptatretus decatrema*, sp. n.

Bdellostoma polytrema (non Girard), Putnam, Proc. Boston Nat. Hist. Soc. xvi. 1873, p. 160.

10 gill-openings; two rows of 12 teeth on each side, the 3 anterior teeth of each row united at the base; length of head, to first gill-opening, $4\frac{1}{2}$ to 5 in the total length.

Chile.

1-2. 420 & 480 mm. (types of the species).

Chile.

Dr. Delfin.

5. *Heptatretus okinoseanus*.

Homea okinoseana, Dean, Journ. Coll. Tokyo, xix. 1904, Art. 2, p. 11, fig. B, p. 20, and pl. i. fig. 1.

8 gill-openings; on each side 12 teeth in the outer and 10 or 11 in the inner row; 3 anterior teeth of outer and 2 anterior teeth of inner rows united basally; length of head, to first gill-opening, about 4 in the total length.

Japan.

6. *Heptatretus cirratus.*

Petromyzon cirrhatus, Schneid. Bloch's Syst. Ichth. p. 532 (1801).

Bdellostoma forsteri, Müll. Abhandl. Akad. Berlin, 1834, p. 80.

Bdellostoma cirrhatum (part.), Günth. Cat. Fish. viii. p. 511 (1870).

Eptatretus cirrhatus, Waite, Rec. Canterbury Mus. i. 1909, no. 2, p. 2, pl. xiii.

7 gill-openings; on each side two rows of 12 teeth, the 3 anterior teeth of each row united at the base; length of head, to first gill-opening, about $3\frac{3}{4}$ in the total length.

New Zealand.

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| 1. 530 mm. | D'Urville Is., Queen Charlotte Sound. | 'Challenger.' |
| 2. 400 mm. | New Zealand. | Capt. Stokes. |

7. *Heptatretus banksii.*

Homea banksii, Fleming, Philos. of Zool. ii. p. 375 (1822).

Bdellostoma heptatrema, Müll. Abhandl. Akad. Berlin, 1834, p. 79.

7 gill-openings; on each side two rows of 8 teeth.

Southern Pacific.

8. *Heptatretus hexatrema.*

Bdellostoma hexatrema, Müll. Abhandl. Akad. Berlin, 1834, p. 79.

Bdellostoma heterotrema, Müll. l. c.

Bdellostoma cirrhatum (part.), Günth. Cat. Fish. viii. p. 511 (1870).

6 gill-openings; on each side 12 teeth in the outer row and 11 or 12 in the inner; 3 anterior teeth of outer and 2 anterior teeth of inner rows united basally; length of head, to first gill-opening, $3\frac{1}{2}$ to $3\frac{1}{2}$ in the total length.

South Africa.

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| 1. 700 mm. | Simon's Bay. | 'Challenger.' |
| 2. 550 mm. | Table Bay. | J. L. Stathan, Esq. |
| 3. 430 mm. | False Bay. | Dr. J. D. F. Gilchrist. |
| 4. 230 mm. | — | Dr. Günther. |

9. *Heptatretus buergeri.*

Heptatrema cirrhatum (non Schneid.), Schleg. Faun. Japon., Poiss. p. 310, pl. cxliii. (1850).

Bdellostoma buergeri, Girard, Proc. Ac. Philad. 1854, p. 199.

Homea buergeri, Dean, Journ. Coll. Tokyo, xix. 1904, Art. 2, p. 11, fig. C, and p. 21.

6 gill-openings; on each side 9 teeth in the outer and 9 or 10 in the inner row; 3 anterior teeth of outer and 2 anterior teeth of inner row united basally; length of head, to first gill opening, $3\frac{1}{2}$ in the total length.

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| 1. 380 mm. | Yokohama Bay. | Prof. D'Arcy Thompson. |
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